

ROTARY MULTI-POSITION MAGNETIC DETENT DEVICE

Abstract of the Disclosure

A rotary multi-position magnetic detent device includes an inner member having an outer cylindrical surface and an outer member receiving the inner member. The outer member has an inner cylindrical surface and the outer member rotates relative to the inner member. A plurality of inner magnets are disposed in the outer surface and distributed regularly and peripherally around the outer surface. The inner magnets have radially oriented magnetic poles, and alternate adjacent ones of said inner magnets have alternate radially outwardly directed north and south poles. A plurality of outer magnets are disposed in the inner surface and distributed regularly and peripherally around the inner surface. The outer magnets have radially oriented magnetic poles, and alternate adjacent ones of the outer magnets have alternate radially inwardly directed north and south poles. As the inner and outer members are rotated with respect to each other, the inner and outer magnets generate opposing and attracting forces each other to form a plurality of magnetic detent positions. A magnetic field sensor generates a signal in response to relative rotation of the inner and outer members.